

FOOD SECURITY MANAGEMENT PROJECT

AGRICULTURAL DATA COLLECTION COMPONENT

PASA No. IPK-0491-P-AG-5019-00

END OF PROJECT REPORT

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LIST OF ACRONYMS

ACO	Agricultural Census Organization
ADC	Agricultural Data Collection
ADP	Automatic Data Processing
AID	Agency for International Development
ARD	Agricultural and Rural Development
ASF	Area Sampling Frame
ASSP	Agriculture Sector Support Program
CV.	Coefficient of Variation
COP	Chief of Party
DG	Director General
FBS	Federal Bureau of Statistics
FSM	Food Security Management
FY	Fiscal Year
GOP	Government of Pakistan
GSO	General Services Office
MOD	Ministry of Defense
MOF	Ministry of Finances
MS	Master of Science
NASS	National Agricultural Statistics Service
OICD	Office of International Cooperation and Development
OY	Objective Yield
PASA	Participating Agency Service Agreement
PCO	Population Census Organization
PDA	Provincial Department of Agriculture
PG	Provincial Government
PISTAR	Pakistan Institute of Statistical Training and Research
PLA	Personal Ledger Account
SD	Statistics Division
SOP	Survey of Pakistan
SPOT	Spot Image (French Satellite Data-Remote Sensing)
SUPARCO	Space and Upper Atmosphere Research Commission
US	United States
USDA	United States Department of Agriculture
VMS	Village Master Sample

I. SUMMARY

The ADC project achieved varying degrees of success with its major objectives. The main goal of building a national area sampling frame (ASF) was completed although it took longer than planned. It is the most complete and perhaps the best area sampling frame outside of the U.S. A system for regular and consistent agricultural surveys that deliver accurate and timely information about crop area and production is in place. The training component produced a broad base of expertise in ASF methodology, survey techniques, survey administration, computer technology, data processing and analysis and management of a scientific statistics system. Data processing enhancements exceeded requirements. The key objective of installing the ASF methodology as a permanent modification of the existing agricultural statistics system is not yet complete. All of the mechanisms and facilities are in place for putting the new system in operation. The decision rests with the GOP.

Background

In July 1985, the USAID and the GOP entered into a five year project to improve the food security of Pakistan. The FSM project included three major components: Economic and Policy Analysis, Post Harvest Management, and Agricultural Data Collection. The ADC was extended for another four years under the ASSP and its accomplishments are summarized in this document. The USDA supplied administrative and technical support through a PASA. The OICD was given overall administrative responsibility and NASS was assigned responsibility for the technical applications. The goal of the ADC was to build a cost effective system to provide accurate and timely statistics on agriculture that would lead to improved planning and policy decisions relating to national food security. The purpose was to modify the existing agricultural statistics collection system to make it more accurate and efficient. The summary objective was primarily one of technology transfer. The current national system has evolved over the past four decades with donor support and has a number of inadequacies, including: It is revenue based; the VMS is biased and requires an unnecessarily large sample; administrative procedures are cumbersome resulting in untimely availability of data; it is subject to political and personal pressures which influence the data. The goal was to transfer the ASF technology developed in the USDA to GOP personnel in the FBS and to PDA personnel located in the various PGs. Host country overall oversight was assigned to MINFA and supervision of the project activities and construction of the ASF was the responsibility of FBS, SD, MOF. Data collection activities were to be carried out by the PDAs in the four provinces. A complete history and evaluation of the project can be found in the PASA, the project paper and related documentation listed in Appendix 2.

II. PROJECT DESCRIPTION

A. Purpose

The ADC component of the FSM Project was conceived to: Modify the existing agricultural data collection system in Pakistan to make it more timely, cost effective and statistically reliable.

B. Objectives

Objective 1

To introduce ASF technology for collecting basic agricultural survey data on crop area, yield, production and certain economic statistics relevant to the agriculture sector.

Activities

Complete the ASF for seven pilot districts.

Inform GOP and PDA officials about the advantages of ASF technology.

Conduct comparative analysis of ADC pilot survey results and existing VMS survey results.

Demonstrate the statistical reliability and efficiencies of the ASF methodology.

Outputs

ASF for seven pilot districts.

Informed policy makers who value reliable statistics for decision making.

Approval and support to proceed with ASF development for the entire country.

Outcome

Approval of Phase II.

Objective 2

To construct an ASF for the country representing the entire land area without omission or overlap.

Activities

Provide a state of the art, automated ASF construction laboratory.

Complete the ASF for the entire country.

Output

A nation wide sampling frame that will provide statistically reliable and efficient samples at the provincial level.

Outcome

Effective, low cost national surveys that provide statistically reliable statistics on agriculture.

Objective 3

To provide a regular and consistent program of accurate and timely statistics on agriculture for improved economic analysis through the use of statistically reliable sampling, survey and analytical methodologies.

Activities

Utilize the ASF to provide statistically reliable survey samples for major crop surveys.

Collect, process, analyze and evaluate survey data using statistically sound practices and procedures.

Base inferences entirely on technical criteria.

Adhere to a predetermined schedule for releasing survey data.

Output

Reliable survey indications for crop area and production estimates that are free from political or personal biases.

Outcome

Improved planning and policy decisions.

Objective 4

To strengthen ADP capabilities necessary for more effective and efficient handling of ASF development, sampling, survey data processing and analysis and data retention.

Activities

Provide microcomputers and software to FBS and the PDAs.

Train officials in the use of the hardware and software.

Provide guidance and consultation until the data processing systems are operational and support broad scale upgrading of the FBS data processing capabilities.

Output

Widespread capability for key entering survey data and processing other provincial statistical data more efficiently in the PDA's.

Ability to process the huge data files associated with ASF construction, survey sampling and data processing in FBS.

Ability within FBS to assimilate provincial data sets to produce national estimates.

A reference data base of historic crop estimates.

Outcome

National food policy decisions based on timely non-biased statistics.

Objective 5

To develop a cadre of FBS and PDA officials trained in ASF construction and maintenance; probability sampling; data collection, processing and analysis; and the operation and maintenance of a statistically reliable agricultural statistics system.

Activities

Conduct observation tours for policy level executives and study tours for operational level officials to the U.S.

Send qualified candidates abroad for degree training.

Send qualified candidates abroad for non-degree and specified short course training.

Conduct specialized in country training courses in basic statistics, survey methodology and basic computer operation and data processing.

Output

Officials trained in all phases of ASF methodology and operational procedures.

Outcome

Sustainability of the ASF based statistics system.

Objective 6

To modify the VMS based survey system with the ASF based system.

Activities

Conduct comparative analysis of output from the VMS and ASF.

Conduct seminars for high level officials to explain the advantages of ASF technology.

Advise policy makers on the cost/benefit value of ASF methodology.

Output

Seminars, presentations, research and advisory papers to inform policy makers about the attributes of ASF methodology.

Outcome

GOP funding of the ADC.

III. PROJECT PERFORMANCE

A. Major achievements

1. **ASF Methodology** - The application of ASF technology was a new concept for statistics organizations in Pakistan. The DG, FBS and various PDA officials had been introduced to operational ASF systems during observation tours to the U.S. in the 1970's. Also some GOP and PG officials were exposed to this technology during their study of statistics in the U.S.. Operating efficiency and statistical reliability were the major desirable attributes of the ASF system noted by the Pakistani officials. The application of ASF technology was introduced steadily to a wide range of GOP officials over the life of the project. Phase I provided for the development of independent ASFs in seven pilot districts, four in Punjab and three in Sindh, to demonstrate the statistical and operational capabilities of the methodology. Phase II provided for completion of the ASF country wide following GOP approval based on the performance of the pilot districts.

The introduction of objective yield measurement techniques corresponded with the completion of ASFs in the pilot districts. OY surveys began with wheat and later were expanded to rice, cotton, maize and sugar cane. Results were compared with the VMS crop cutting experiments.

2. **ASF Construction** - Work began on the ASFs for the pilot districts in a temporary laboratory set up at SOP in Rawalpindi in November 1985. MOD had restricted FBS's use of the aerial photography and topographic maps required for land use stratification to the SOP quarters. After renovating space at the FBS facilities to MOD's security specifications, the ASF laboratory was moved to Islamabad in July 1986. Frame construction for the seven pilot districts used low level aerial photography as the stratification medium. Photo mosaics equal in size to one 1:250,000 topographic map were constructed by hand using 1:30,000 low level aerial photography. Count units were drawn on the photo mosaics and transferred to topographic sheets. Although the photography was rapidly becoming out dated because of changing land use patterns it was good quality and resulted in a highly accurate frame. However, this procedure was time consuming and expensive. Further, photography of this quality was available for only 14 districts.

Concurrent with the GOP approval to proceed with phase II and the coming on line of the SUPARCO SPOT receiving station in Islamabad, the frame construction procedures were changed. SPOT satellite imagery provided the land use stratification medium and count units were drawn directly on the topographic sheets for phase II work. Two zoom transfer scopes and four precision coordinate digitizers installed at the laboratory furnished state of the art equipment.

ASF construction for the seven pilot districts was completed in December, 1988, 18 months behind schedule. The GOP gave approval to proceed with Phase II in December 1989. Following this one year delay in getting approval to continue the project, it was inconceivable the national ASF could be finished by the scheduled June 1990 project ending date. Subsequently, the project was extended through December 1994 under the ASSP. With the highly mechanized laboratory facility in place, a well trained and experienced staff and a steady flow of SPOT imagery from SUPARCO, frame construction proceeded at a rapid pace. Construction of the national ASF was completed in December 1992.

3. **Survey Program** - A series of regular surveys, approximately on a quarterly schedule, for crop area measurement began in the pilot districts and expanded to the provinces as each provincial ASF was completed. Following is a brief summary of the kinds of data collected on each survey.

April -	Rabi final planted area Kharif intentions to plant Fertilizer, pesticides and water use on Rabi crops
August -	Rabi area harvested Kharif area planted Sampling base for Rice, Cotton and Sugar cane OY.
October -	Kharif final area planted Rabi intentions to plant Fertilizer, pesticides, and water use on kharif crops.
January -	Rabi area planted Kharif area harvested Sampling base for wheat OY

The survey schedule for crop area was reduced to surveys in January and July at the beginning of Phase II.

The value of data can be measured by its timeliness. Results from the crop area and OY surveys were consistently released on a predetermined schedule and well in advance of the data from VMS and Patwar surveys. Appendix 3 shows some comparative release dates for ADC survey data and traditional PDA data.

Results of area surveys in the pilot districts consistently returned CVs in the two to three percent range for all land. CVs for major crops such as cotton, wheat and rice were in the four to eight percent range and 10-19 percent for fodder and sugar cane. Combining the data for the four pilot districts in Punjab and the three districts in Sindh lowered the CV for wheat to under three percent in each province. Other major crops showed a similar improvement in sampling efficiency. Provincial level samples with reduced sampling rates will yield CVs in the 2-3 percent range for major crops.

Until provincial project coordinators were appointed and project offices set up, provincial operations were run out of the existing data collection offices under the direction of incumbent officials. It was late in the project before the office structure was complete in all provinces.

4. **ADP Activities** - The frame construction, sampling, data processing and data analysis work in the FBS required enhanced computer power. Rapid advancements in the power of microcomputers and corresponding reductions in prices made this the most cost effective way to meet the data processing requirement. The use of microcomputers also allowed the project to reach a broader segment of the GOP with enhanced data processing capability. 130 microcomputer systems were delivered to the GOP during the life of the project. 85 were used in direct support of project activities and 45 were used in related activities at educational institutions and GOP agencies. Appendix 4 shows the disbursement of microcomputers to the GOP.

At the request of AID, the project funded a resident computer consultant for two years to oversee the procurement and installation of mini computers at FBS sites in Islamabad, Lahore, Quetta, and Peshawar provided under the ASSP. These computers are primarily for processing agricultural and population census data but can also be used to process the data from nation wide ASF surveys.

5. **Training** - The training component exceeded expectations for in country training and foreign non-degree training but fell short of its objective for foreign degree training. The ADC retained responsibility for the in country training and AID was responsible for foreign training. The foreign degree program produced graduates with M.S. degrees in statistics qualified to do statistical survey design and sampling. The foreign non-degree training provided exposure for GOP and PG officials to the U.S. agricultural statistics system through study tours, observation tours and internships. Short courses in the U.S. provided technical instruction in statistical methodology and survey techniques.

The in country program served the greatest number of participants. Seminars, workshops and short courses offered a wide variety of instruction in basic statistics, sampling, survey methodology, data collection and processing, data analysis and statistical systems operation. During Phase I, training was provided by short term consultants mostly from USDA, the resident project staff and FBS. A large segment of the in country training involved training FBS and PDA officials in ASF construction and survey operations. FBS statistical officers received six weeks of hands on instruction in ASF construction. Field

enumerators received intensive training in data collection procedures and survey operations before each field survey. Some technical training continued under the ADC during phase II but PISTAR assumed most of the technical training role at this stage. PISTAR was established in Lahore by the SD to provide in service training to employees of its three Bureaus, the FBS, ACO and PCO. The project supported the establishment of PISTAR through consultation and the provision of training equipment including microcomputers and visual display teaching aids. This activity was consistent with the overall goal of strengthening the agricultural statistics expertise of the GOP and PGs. Appendix 5 summarizes the technical training accomplishments.

6. **Operational ADC** - All of the mechanisms and facilities are in place to sustain the ASF methodology as a modification of the VMS. Comparative analysis and methodological research have shown the ASF technology to be superior to the existing system in statistical integrity, efficiency, timeliness, flexibility and adaptability. Provincial level sample allocation was completed in April, 1993. The large number of segments that had to be delineated by hand in the field, because aerial photography was not available, delayed preparations for a nation wide survey until mid-1994. By this time, AID had suspended funding for field operations, and the PC-1 for GOP funding was not yet approved. Consequently, a complete national ASF survey was not completed but could have been completed if adequate GOP support had been available.

B. Overview of Participant Performance

1. AID Pakistan technical support through ARD contributed significantly to the success of the project. The AID project officer took an active interest and was a source of support during some trying times. ARD support continued throughout the project but was particularly beneficial during the early stages while the project team got settled and the project office was being set up. Logistical support in the provinces while regional coordinating offices were being set up was very valuable. The mission controller was diligent in his efforts to help solve the local funding difficulties created in the PASA. It was largely through his assistance that a local funding procedure was worked out. Mission GSO personnel provided strong support and treated consultants on a par with direct hires. Occasional tense moments occurred in the AID/ADC relationship brought on by personality conflicts and differences of opinion on the best way to handle constraints and difficulties in dealing with the GOP. Despite these differences, the mission shared in the desire for the project to succeed and deserves an "A" for its support.
2. NASS procurement activities usually were completed in a timely manner but at times a bit more attention to specifications would have resulted in more effective solutions to equipment needs. The administrative backstop office handled most situations effectively. The Agency readily supported training and technology transfer with qualified persons through short term consultancies which contributed in many ways to the project's achievements. Logistical support and technical guidance for foreign training participants contributed to the effectiveness of foreign training.

3. OICD accounting and administrative services left a lot to be desired. Up to date accounting figures were required in the quarterly reports to AID. The numbers from NASS, although not the official USDA figures, were available without difficulty, but OICD figures never were ready on time and often were incomplete and unclear. AID Pakistan has a long history of dealing with USDA through OICD and fortunately for NASS, distinguishes between USDA's technical abilities and its accounting abilities. The lack of administrative guidance in developing a workable in country funding mechanism left the resident project team without a way to pay local expenses that are inevitable in a national project like the ADC.
4. GOP failure to buy in at high levels was a constant obstacle and was accentuated by the top down management style in Pakistan. The channel through SD to Ministry level officials didn't provide the positive exposure the project needed. Brief periods of support by interested SD Secretaries were somewhat effective but was always cut short by scheduled rotation of the officials. The merger of the Statistics Division with the Division of Economic Affairs in 1992 further handicapped efforts by FBS to promote the project at high levels. The FBS is a technically competent, hard working and well managed organization but with limited political influence. Its technical expertise was evident in the rapid progress that was made in technical areas when constraints were removed; however, efforts to promote the project at higher level were generally ineffective. A stronger alliance between FBS and the PDAs could have strengthened the overall project effort.

PG support was mostly superficial and neither high level nor operational level officials accepted the new methodology as a valid alternative to the existing system. Provincial officials went along with the project but were never committed to its future. They were attracted to the hard commodities available, some of which were diverted to non project uses.

The structure and functional abilities of the PDAs vary tremendously. The project can be brought to an operational level easily in Punjab and Sindh with the proper PG support but a lot of training and support from FBS and some structural changes are needed to make the project sustainable in Balochistan and NWFP.

C. Challenges and Constraints

Specific Problems

1. **ASF Methodology** - Reliance upon the revenue based VMS and Gardawari system proved to be the hardest obstacle to overcome in introducing ASF technology. The Gardawari and VMS, based on Patwari revenue records, are inefficient, biased, untimely and provide questionable results. Despite these shortcomings, the system has been in place many years and is well entrenched. Provincial governments which have constitutional responsibility for basic statistics on agriculture possess a keen sense of ownership of the system. The PDA officials feel threatened by the ASF technology and never fully supported the project. The PDAs also are concerned that the FBS might supplant them as the primary agricultural data provider. Their main focus is on protecting their turf and maintaining the status quo with

scant regard for the welfare of the nation. Moving away from the highly inefficient VMS based crop cutting experiments for yield determination presented a similar challenge. Major stated objections to the OY centered around its small field plot size. Despite repeated research efforts that proved the methodology to be statistically sound, it was not accepted. In reality, the concern was about losing control of the VMS system.

2. **ASF Construction** - Getting ready access to the mapping materials necessary for land use stratification posed the most challenging problems in ASF development. The difficulties experienced in dealing with the MOD delayed completion of the ASF by two years.
3. **Survey Program** - The inability to establish provincial project coordinating offices and pay the salaries of field staffs in a timely fashion were the major obstacles faced in establishing a systematic series of field surveys and keeping them on a predetermined schedule. It was not until late in 1992 that the last province appointed a project coordinator independent of the existing structure. FBS established a lapsable PLA with the Budget Division to transfer funds from AID to GOP to fund project operations. This wasn't effective because of the time it took to get funds from AID to the provincial project offices. About three months were required to get the PLA established at the beginning of each FY. When the rupee check from AID reached the FBS, another month or more was lost in getting the check deposited in the FBS PLA. The funds then had to be transferred to provinces PLAs and then wend their way through the provincial bureaucracies on the way to the provincial project offices. By the time funds could be distributed, the field staffs had sometimes worked six months without receiving their salaries. This resulted in some poor quality data being collected, especially late in the project. FBS succeeded in establishing a non lapsable PLA in the fourth year of the project which resulted in some improvement, but late payment of salaries and other expenses remained a problem throughout the project. The slow payment of salaries and other expenses no doubt contributed to the PDAs disdain for the project.

The moral of field staffs was low. Factors other than the funding situation contributing to low staff satisfaction were uncertainties about the future of the project and the lack of strong support from PDA officials.

4. **ADP Activities** - The ADP component exceeded its objectives with little difficulty.
5. **Training** - The shortage of qualified candidates that could qualify for admission to MS programs in statistics at universities in the U.S. limited the number receiving MS degrees to one.

The GOP and PG procedures for nominating candidates for in country and foreign non-degree training resulted in some overlap in persons receiving training. The absence of an effective screening process also placed inappropriate persons in some training activities.

6. **Operational ADC** - Efforts to establish an operational, smooth running ADC suffered from the lack of high level GOP support and the poor working relationship between the FBS and the PDAs. Constitutional responsibility for basic agricultural statistics rests with the PGs while FBS is charged with keeping all official statistics for the country. The FBS, using its own field staff, conducts surveys to collect data where the PG coverage is lacking and in some cases the field work is overlapping. This often creates an adversarial relationship between the two organizations. Although the PDAs are required to provide provincial level statistics on agriculture area and production to FBS, the numbers are often delivered more than a year late. FBS has no authority to influence the PDAs in this regard and, therefore, must merely accept what is provided to them. It would appear that FBS and the PDAs should have common interests toward providing reliable statistics to further the country's food security. However, it is clear that special interests and maintaining the status quo take precedence over the interest of the nation.

The GOP policy of rotating policy level officials about every two years thwarted efforts to develop strong support at the Secretary level and above. Statistics Division had 6 Secretaries during the life of the project. Only two of them showed any real interest in the project and understood its implications on the management of the country's food policy. The current additional Secretary MINFA is responsible for wheat imports and is a supporter of the project because he realizes the value of early season crop production data in making food policy decisions and fully recognizes the superiority of the ADC technology. His support may be somewhat superficial and because of heavy demands on his time he has not demonstrated the willingness to take high risks to get the PC-1 funded which, at the time of writing this report, was stalled with the DG, MINFA.

IV. Learning from the Experience

A. Tactics

This project was conceived during a time when donor assistance was pouring into Pakistan and new development projects were being initiated faster than the government could effectively manage them. The project had worthy goals and objectives but some of the design assumptions proved very difficult if not impossible to implement.

1. Locating the COP in Karachi and the Agricultural Statistician in Lahore was not a workable situation because of restrictions on moving mapping materials out of SOP quarters. Although the DG, FBS was located in Karachi, most of the FBS staff was in Islamabad and more of its operations were steadily being moved to Islamabad. The ADC cell, the FBS operational unit, responsible for ASF construction was set up in Islamabad.
2. The PASA assigned all project funds to USDA. This caused severe problems in converting dollars to local currency for funding local project operations. The first annual PASA amendment assigned some funds to AID which in turn made local currency funds available through its Bangkok office.

3. The PASA called for a mini computer to handle ASF development and data processing. A decision was made early to satisfy the data processing need with microcomputers. This provided flexibility, diversity, cost savings, and allowed the ADC to introduce ADP technology to a wider range of counterpart agencies.
4. Although funding was almost entirely underwritten by grants, the GOP budgetary system prevented effective utilization of funds. We could have worked around this problem with direct donor funding but this would have created an equally serious problem in turning operations over to the GOP.
5. Persistent relational problems among the three responsible Host Country organizations could have been avoided by assigning total responsibility to a single agency.
6. Promoting the new methodology more aggressively at the highest levels of government might have lessened the resistant to giving up political influence on agricultural statistics.

B. Conclusion

NASS can be satisfied with its contribution to the success of the ADC Project. Most of the major objectives were accomplished, much to the benefit of agricultural statistics in Pakistan and the many individuals who shared in the achievements. Relationships developed and associations formed will last far into the future keeping alive these accomplishments. We demonstrated clearly that scientific methodology can work with a high degree of precision in a developing country under adverse conditions. Graduates of the ADC Project will continue their contribution to improving agricultural statistics in Pakistan and around the world.

Some things should have been done differently and many things could have been done better, but our errors in judgement will be the most lasting lessons learned from the experience. The Agency has benefitted from this experience and will build on it as we prepare to meet similar challenges in the future.

C. Strategies for Sustainability

1. Expand the use of the ASF to economic and other types of surveys. The frame will perform with a high degree of precision for any rural or village based survey.
2. The ASF has a long productive life but will need to be updated in the future. Therefore, persons trained in ASF construction should be retained.
3. Build on the ADC experience by including ASF methodology in the regular curriculum at PISTAR.
4. Overall management and funding responsibility of the ADC should be handed over to MINFA. However, a strong working relationship must be developed with FBS to continue to furnish the technical expertise for operating the ADC and with the PDAs to provide field services. MINFA will not be able to make the project operational without the full support of trained personnel from FBS that have been involved in the project since its inception.

TABLE OF APPENDICES

1. Scope of Work - PP 6-12 of the PASA
2. List of Publications and Reports
3. Comparative Release Dates
4. Distribution of Microcomputers
5. Technical Training Accomplishments
6. ADC PASA Funding Levels.
7. Organizational Charts - AID, ADC, FBS

**PARTICIPATING AGENCY SERVICE AGREEMENT
BETWEEN
SCOPE OF WORK THE AGENCY FOR INTERNATIONAL DEVELOPMENT**

**U.S. Department of Agriculture
PASA NO. IPK-0491-P-AG-5019-00**

Statement of Work for the ADC Component

1. General Responsibilities

The technician shall be responsible for widespread adaptation of the Area Sampling Frame (ASF) technology in support of regularly scheduled surveys to generate primary agricultural data of maximum utility to GOP planners and policy makers. The technician shall assist the FBS in: procurement of aerial photography, LANDSAT imagery and any other mapping materials required for ASF development; identification of appropriate Pakistani staff for long and short-term, overseas and in-country training and selection of appropriate institutions; and design and execution of in-country training for Pakistani staff to facilitate project implementation.

The present sampling frame is village-based, whereas the ASF will be land-use based. Its incorporation into the existing agricultural data collection and reporting system will result in more accurate and reliable statistics with a smaller sample. Starting on a pilot basis in selected districts, the technician shall assist the FBS in systematically expanding the ASF to a country-wide system of recurrent national and provincial crop surveys and reports. Two surveys shall be performed during each growing season; one in the early part of the season and the other at or near harvest. A system of quarterly reports shall also be introduced to ensure timely availability of current data.

The first survey for each crop season (rabi and kharif) will provide the basic estimates and serve as a base for future sub-samples which can be used for objective yield surveys, agricultural inputs and farm labor surveys. In support of these surveys, the technician shall be responsible for training enumerators in techniques required to locate and identify sample units within sample fields. In support of timely data summaries and analysis, the technician shall advise the FBS and PDAs on the purchase of additional automated data processing equipment, procure the commodities, assist in its installment, and be responsible for training GOP personnel in its use.

The technician shall also be responsible for the introduction and implementation of objective yield surveys. The objective yield surveys will be random sample of fields selected with a known probability from the seasonal ASF surveys. The acreage of each major crop can be estimated and statistical inference to the provincial and national level can be made. the technician shall be responsible for training enumerators in random sample selection and location technology and their supervisors in data tabulation and analysis.

2. Level and Nature of Efforts

The USDA/SRS shall provide:

- a. one senior statistician for 48 person-months (3/85 - 3/89);
- b. one survey statistician for 48 person-months (9/85-9/89);
- c. up to 60 person-months of short-term technical advisory services (both in Pakistan and in the home office in the U.S.);
- d. procurement services for office and project-related equipment (and where appropriate the installation and testing of same) including but not limited to ADP (micro-computers) equipment and related hardware and software;
- e. assistance in the design, implementation, and evaluation of in-country training programs (approximately 370 individuals for 210 person-months).
- f. assistance in the identification of long-term and short-term overseas training needs, appropriate training sites, and suitable candidates for such training;
- g. local enumerators and other professional and administrative staff to implement the ADC component of the FSM Project as required through a sub-contractor(s) with a local firm/institution; and ,
- h. local office support staff (including one senior Program Specialist/Finance Manager; two Drivers; and two Secretaries) through sub-contracts and/or purchase orders with local individuals.

3. Specific Responsibilities

a. Provision of Technical Advisory Services

i. Senior Statistician (Team Leader) (48 PM)

The team leader shall advise and assist the GOP in the development and maintenance of the ASF; the development and implementation of objective yield surveys; the development and expansion of the current ADP system; the implementation of pilot samples in at least two provinces; the design and implementation of short-term in-country training; identification of participant trainees; and identification of short-term technical assistance needs to implement the above. The specific responsibilities of the senior statistician shall include, but not be limited to, the following:

1. to identify short-term technical assistance needs and obtain the required GOP and AID clearances;
2. to assist federal and provincial counterparts to identify pilot sites and finalize budgets for the pilot sample surveys;
3. to evaluate the extent and adequacy of existing mapping materials and determine the need for new aerial photography and its related cost;
4. to ensure proper coordination among short-term advisors with their federal and provincial counterparts;
5. to serve as a resource person for the FBS and ARD/EMPAS;
6. to organize regular coordination meetings of provincial and federal counterparts with USDA technical advisors;
7. to develop a reporting system for USDA technical assistance and ensure its effective implementation;
8. to evaluate the performance of USDA advisors and work to resolve any problems that may arise;
9. to coordinate with Mission EXO and PDM Offices as required to ensure timely procurement of project commodities and provision of TA logistic support;

10. to assist in all GOP and AID financial and administrative matters related to technical advisors, training and procurement;
11. to work closely with the USAID Training Officer to ensure that appropriate arrangements are made for training in local institutions, in-country training by advisors, and long and short-term training outside of Pakistan;
12. to work with local training organizations and government officials as required to facilitate the training components of the project;
13. in collaboration with the GOP and USAID/Pakistan, to identify local personnel to be hired with project funds for implementation of the ADC component;
14. in consultation with the GOP and USAID, to develop a detailed implementation plan, periodically updated as required;
15. to identify ADP needs and equipment specifications to support agricultural data collection activities;
16. to monitor and evaluate the progress of the ADC component according to the implementation schedule established above;
17. to keep the GOP and AID project officers informed of the status of all training and TA activities;
18. to participate in the design and conduct of short-courses, seminars and workshops during the life of the project;
19. to monitor the services of the Pakistani professionals and staff, temporary enumerators for the ADC component, and any other local firms and/or individuals hired under the project;
20. to draft data collection policies and procedures for submission to USAID and GOP for consideration and approval, as required for project implementation; and
21. to prepare necessary reports and project documents as required by USAID (see Section 4.f). One typed copy of all required reports

shall be submitted to ARD/EMPAS, USAID/Pakistan. This office will be responsible for reproduction of the reports and their distribution within AID, the GOP and to other interested parties.

The senior statisticians should possess an M.S. in statistics, or have the equivalent in experience and training, and possess at least 5 years of proven managerial experience in the production of agricultural statistics. He/She should also possess experience in crop yield forecasting particularly in objective yield surveys. The incumbent must have excellent oral and written communication skills and demonstrated ability to work with third world government officials and professionals.

ii. Survey Statistician (48 PM)

The second long-term advisor shall undertake implementation of the pilot samples in the provinces not covered by the senior statistician. His objective will be to build on the work to date of the team leader and expand the ASF sampling methodology to cover the entire country by the end of the project and to leave a trained staff to continue the ASF data collection, analysis and reporting system. In order to meet this objective, the incumbent shall undertake and complete the following:

1. where deemed appropriate by the team leader, assist with the implementation of activities described in i.above;
2. oversee ASF construction, sample design and selection for his respective provinces, provide technical expertise to the FBS and the PDAs in coordinating implementation of the project's data collection and analysis activities and procedures as required to institutionalize the ASF system;
3. advise on the adoption of ADP techniques to meet Pakistan's analytical and reporting requirements;
4. participate in the development of appropriate sampling frames for the major crops grown by Pakistani farmers and implement the use of sampling frames for the collection of acreage, production and farm and household data;

5. provide on-the-job training for provincial and federal GOP staff from senior levels down to the most junior enumerators on methodology and sampling techniques procedures; and,
6. coordinate with the GOP and USAID's HRT Office in the development of a graduate level program of training in the application of computer technology, statistics, yield modeling, forecasting, remote sensing, data collection, and summarization at U.S.S universities and/or the USDA.

The incumbent must possess an M.S. in statistics or the equivalent in experience in training and/or experience. He/she must have at least 2 years of managerial experience in the production of agricultural statistics. Incumbent must have excellent oral and written communication skills and demonstrated ability to work in third world situations. He/she should have experience in crop yield forecasting particularly in objective yield surveys.

iii. Short-Term Technical Services(60 PM)

A variety of short-term, specialized advisory services shall be required to support the FBS and the PDAs during project implementation. While it is expected that most of the short-term assistance will be provided by consultants in Pakistan, it is also anticipated that some short-term services may be required by professionals in the home office in the U.S. of the USDA/SRS. The critical role of the short-term TA shall be to effect technology transfer to their counterparts as part of their technical assignment. the general categories of expertise needed are described below:

1. ADP (main-frame/mini/micro computers): thorough knowledge of Basic, Fortran(s), SPSS, SAS, etc.; systems procedures, installation and analysis; and maintenance and repair of the last two categories of computers.
2. Objective Yield Surveys: theoretical and applied statistics, especially survey design and data collection; thorough background in sampling, questionnaire design, objective yield forecasting and forecasting; and background in installation of objective yield laboratory equipment.

3. ASF Construction and Use: theoretical and applied statistics; interpretation of aerial photos and LANDSAT imagery; and, ASF evaluation and maintenance.

Prior approval by the A.I.D. Project Officer of both the scope of work and the timing/duration of the assignment shall be required for all short-term technical advisory services (both in the U.S. and in Pakistan) provided by the USDA/SRS under this PASA.

b. Training

i. Overseas Degree and Non-Degree Training

The specialist shall assist the GOP in the identification of appropriate sites and in the selection of qualified candidates to attend both long-term and short-term degree and non-degree training programs in the United States and third countries in areas related to the implementation of the ADC component of the FSM Project. It is estimated that during the life of this PASA, up to 290 PM (7.5 PM invitational travel; 26 PM short-term and 260 PM long-term) of such training will be undertaken. In certain cases, graduate students, particularly those studying for M.S. degrees, will undertake their thesis research in Pakistan. The USDA resident team of specialists may be called upon from time to time to supervise such research. Participant placement, logistics, and other support services, which will be financed separately and hence will not be included in this PASA, will be the responsibility of USAID's Office of Human Resources and Training through its contract with the Academy for Educational Development (AED). All such training shall be subject to the prior approval of the GOP and A.I.D.

ii. In-Country Training

Each of the USDA resident specialists supplemented by short-term specialists, will be responsible for assisting in the design, implementation and evaluation of relevant in-country training courses, seminars and workshops in such areas as statistics, surveying, computer utilization, photo interpretation and crop cutting techniques. Up to \$212,000 will be provided over the life of the PASA to enable the USDA/SRS to finance the travel and per diem of participants and other related and allowable costs for such programs, with the prior approval of the A.I.D. Project Officer. An estimated 210 person-months of short-term in-country training is

contemplated.

c. Commodity Procurement

With the prior approval of the AID Project Officer, the USDA/SRS shall be authorized to procure, from eligible local as well as overseas sources, various project commodities, including but not limited to: mini and micro-computers, printers, calculators, copying machines, office supplies and the like. for ADP equipment, the USDA/SRS shall also arrange for or provide directly testing, installation, maintenance and repair services as well as training as required for local personnel. For procurement which include over \$10,000 of data processing or word processing equipment software, and/or related technical services, the USDA/SRS shall also obtain approval from the Office of Information Resources management (IRM) in AID/Washington. All local procurement shall be undertaken in accordance with A.I.D. regulations for shelf-item procurement for small-value items (unit cost of \$ 5,000 or less) and in accordance with A.I.D. source/origin/componentry regulations and competitive procedures for large-value items.

d. Participation in Program Evaluations

The USDA resident team of specialist may be called upon, from time to time, to participate as resource personnel in evaluations conducted by the GOP and USAID of the A.I.D. financed Food Security Management Project.

e. Local Contracting

i. Office Support Personnel

With the approval of the A.I.D. Project Officer, the USDA/SRS shall be authorized to hire local administrative and logistical support staff, including but not limited to secretaries, senior program specialist/finance manager, gardeners, drivers, and the like, to support the Contractor's in-country team.

PUBLICATIONS

TITLE	DATE	AUTHOR
Course evaluation and Trip Report for Basic Agriculture Statistics of Agriculture Statistics Systems	Feb. 13, 1988	Dr. Charles Perry Paul W. Blackwood
Technical Report to the GOP census training and data entry	Dec. 14, 1988	Robert Addison
End of tour Report	August 1988	T.J. Byram
A Review of ASF Techniques	Aug. 8, 1989	ADC Project
Evaluation Report	August 1989	ADC Project Larry Sivers
End of Tour Report	October 1989	Eric Waldhaus
Phase II Implementation Plan	November 1989	T.J. Byram
Training Document for Area Frame construction using Spot Imagery	November 1989	FSM/ADC Project
A Research Project to Study the variation of Wheat yields across fields	February 1990	Robert Addison
1990 Pakistan Plot Size Study	July 12, 1990	Tom Birkett
End of Tour Report	July 1990	Dwayne Nelson
A Research Project to Study the Variation of Wheat Fields	Feb. 1990	ADC Project
Province level sample size & allocation for Balochistan	June 20, 1991	Paul Cook
Analysis of ASF, OY program	July 26, 1991	Ray Halley
1991 Pakistan Objective Yield Research	July, 1991	Tom Birkett

Research Project to Study the variation of Pakistan Rice yield across fields	Aug. 25, 1991	Tom Birkett Robert Addison
Livestock & Poultry Survey	Aug. 15, 1991	Fred Warren
Enumerator Instruction for 1992 Pak. Rice Yield Validation Survey	Jan. 16, 1992	Tom Birkett Robert Addison
Enumerator Instruction for 1992 Pak. Wheat Yield Validation Survey	Jan. 16, 1992	Tom Birkett Robert Addison
Area Sampling Frame Questionnaire Design & Preparation of editing manual	Feb. 13, 1992	Terry P. O'corner
1991 Wheat Research as per ADC Technical Committee, 1991 Rice Yield Optimal Plot Size Study and Wheat Yield Forecast Models	March 31, 1992	Tom Birkett
An Explanation of How Grain Weights From OY Plots are Converted to a per Hectare Yield and Adjusted to a 10 Percent Moisture Basis	May 1992	Robert Addison
An Explanation of how Replications of Sample Segments were Selected in October 1988 for Jhang District and Numbered. Also Some Advantages of Replicated Sampling Over other Kinds of Sampling	May 1992	Robert Addison
An Illustration of How OY Samples are Selected	May 1992	Robert Addison
Illustration of the Closed Segment Expansion of Crop Area From Sample Segments	May 1992	Robert Addison
An Explanation of how Counts and Boll Weights From Cotton OY Plots are Converted to a per Hectare Lint Yield and Adjusted to a 5 Percent Moisture Basis	Sept. 1992	Robert Addison

Province level sample size Allocation	Dec. 4, 1992	Dr. Charles Perry
Computer Program for Summarizing data collected sample segment in 4 Pakistan provinces	Dec. 4, 1992	Gary Keough
The Province level size and allocation for the Punjab, Sindh and NWFP.	April 5, 1993	Dr. Charles Perry
Layout segment in terraced Agricultural & Relocating problem segment	April 29, 1993	Ed Lippert
1992-93 Wheat Yield Forecast Model	July, 1993	Tom Birkett
1992-93 Cotton Yield Forecast Model	July, 1993	Tom Birkett
Documenting Wheat Yield Forecasting Model	July, 1993	Tom Birkett
Documenting Cotton Yield Forecasting Model	July, 1993	Tom Birkett
1991-92 Wheat Yield Validation	July, 1993	Tom Birkett
1991-92 Rice Yield Validation	July, 1993	Tom Birkett
Manual of Instruction OY Laboratory Procedures	Oct. 1993	ADC Project
Manual of Instruction for Supervisors	Oct. 1993	ADC Project
Editing Manual for Field Supervisor for crop Acreage survey	Oct. 1993	ADC Project
Enumerator Instruction for 1994 Pak. Rice Yield Validation Survey	Jan. 1994	Tom Birkett Robert Addison
Procedures for Collection of Data Area & Production of Crops & Preparation of Estimates using Area Sampling Frame Methodology	Feb. 1994	ADC Project

Segment layout in terraced Desert areas & Punjab data analysis	May 19, 1994	Dr. Charles Perry
Practical Classroom Exercise for Complete Enumeration of a Sample Segment	July 1994	Robert L. Addison
Analysis 1992-93 Wheat data, 1993-94 Cotton data, 1992-93 Rice data & Updating Wheat Yield Forecast Model	December 1994	Tom Birkett
End of Project Report	December 1994	T. J. Byram
End of Tour Report	December 1994	Robert Addison
Laying out Segments in Terraced Agriculture	December 1994	Dr. Charles Perry
Analysis of the 1993-94 Wheat Data and 1994-95 Cotton Data, Updating the Wheat and Cotton Yield Forecasting Models, Listing, with Documents in Comments, of SAS Software For Summarization and Modeling and Plots of ASF Cotton and Wheat Models and Data.	December 1994	Tom Birkett
ADC Quarterly Reports	1986 - 1994	ADC Project
ADC Work Plans	1987 - 1994	ADC Project
Enumerator Instruction for Pakistan Pilot Wheat Validation Study		Tom Birkett Robert Addison
The new Objective Yield Models for Corn and Soybeans		Tom Birkett
Procedures for Collecting data on Area and Production		ADC Project
Pakistan Area Sampling Frame		ADC Project
Survey Design Balochistan Province		Carrol Rock Jewel T. Barr Howard Holden

A Report on the Development
of Area Sampling Frame &
First Enumerative Survey
in Sheikhpura Districts

Crop Reporting
Service (Punjab)

RABI CYCLE ADP DOCUMENTATION

January Area Survey data processing	Waqar Gilani
January Area Survey summary	Waqar Gilani
Sample selection, Wheat OY Wheat Yield Validation	Waqar Gilani
Preparation of stickers for Wheat OY, Wheat Yield Validation, Wheat PHL	Waqar Gilani
Preparation of Wheat Acreage Adjustment forms	Waqar Gilani
Processing of Wheat Acreage Adjustment data	Waqar Gilani
Wheat Acreage Adjustment report	Waqar Gilani
Wheat OY data processing	Waqar Gilani
Wheat Yield Forecasting Model	Waqar Gilani
Wheat OY summary	Waqar Gilani
Wheat PHL data processing	Waqar Gilani
Wheat PHL summary	Waqar Gilani
Wheat Yield Validation data processing	Waqar Gilani
Wheat Yield Validation summary	Waqar Gilani

KHARIF CYCLE ADP DOCUMENTATION

July Area Survey data processing	Waqar Gilani
July Area Survey summary	Waqar Gilani
Sample selection for Cotton OY, Maize for grain OY, Maize for fodder OY, Rice OY, Sugarcane OY, Rice Yield Validation	Waqar Gilani

Preparation of stickers for Cotton OY, Maize for grain OY Maize for fodder OY, Rice OY, Rice Yield Validation, Rice PHL, Sugarcane OY	Waqar Gilani
Preparation of Acreage Adjustment forms for Cotton, Maize for grain, Maize for fodder, Rice, Sugarcane	Waqar Gilani
Processing of Acreage Adjustment data Cotton for Maize for grain, Maize for fodder, Rice, Sugarcane	Waqar Gilani
Acreage Adjustment report for Cotton, Maize for grain, Maize for fodder, Rice, Sugarcane	Waqar Gilani
Kharif OY data processing	Waqar Gilani
Cotton Yield Forecasting Model	Waqar Gilani
Rice Yield forecasting Model	
Objective Yield summary for Cotton, Maize for grain, Maize for fodder, Maize (grain + fodder), Rice Sugarcane	Waqar Gilani
Rice PHL data processing	Waqar Gilani
Rice PHL summary	Waqar Gilani
Rice Yield Validation data processing	Waqar Gilani
Rice Yield Validation summary	Waqar Gilani
Rice Research studies, Optimum Plot Size Study	Waqar Gilani

ASF AND VMS INDICATIONS READY FOR REVIEW

	Crop	ASF		VMS	
		Sindh	Punjab	Sindh	Punjab
1987/88	Wheat	20-03-88	07-02-88	-	12-03-88
1988/89	Wheat	07-02-89	08-02-89	12-07-89	12-03-89
1987/88	Cotton	-	05-08-87	-	15-10-87
1988/89	Cotton	22-09-88	22-09-88	15-03-89	15-10-88
1987/88	Rice	-	05-08-87	-	15-10-87
1988/89	Rice	22-09-88	22-09-88	01-03-89	15-10 88
1987/88	Sugarcane	-	05-08-87	-	15-10-87
1988/89	Sugarcane	22-09-88	22-09-88	08-07-89	15-10-88
1987/88	Maize	-	05-08-87	-	15-10-87
1988/89	Maize	22-09-88	22-09-88	-	15-10-88

DISBURSEMENT OF MICROCOMPUTERS TO GOP

Utilization of Computers	Number
Direct support of ADC Project activities	85
Related activities at educational institutions and GOP agencies	45
Total	130

PARTICIPANTS ON STUDY TOURS TO U.S., 1986 THRU 1992

NAME	TITLE	ORGANIZATION
Abdul Samad Gilzai	Senior Statistician	Agriculture Department
Ahadullah Akmal	Secretary	Statistics Division
Akhtar Mehmood	Secretary	Statistics Division
Ayaz Ali Memon	Project Director	Agriculture Extension
Abdul Baqai	Secretary	Federal Bureau of Statistics
Ch. Mohammad Afzal	Director	Crop Reporting Service
Dr. Noor M. Larik	Deputy Director General	Federal Bureau of Statistics
Haji Matiullah	Project Director	Agriculture Extension
Iqbal Ahmed,	Statistical Officer	Federal Bureau of Statistics
Javed Iqbal	Statistical Officer	Federal Bureau of Statistics
Mansoor Sherazi	Statistical Officer	Federal Bureau of Statistics
Mansoor Sherazi	Statistical Officer	Federal Bureau of Statistics
Mohammad Awan	Statistical Officer	Federal Bureau of Statistics
Muzzafar Ali	Secretary	Ministry, Food & Agri.
Rana Atta-ul-Haq	Director	Crop Reporting Service
S. M. Ishaque	Director General	Federal Bureau of Statistics
Shahid Naeem	Chief Statistical Officer	Federal Bureau of Statistics
Sharif A. Khan	Director	Federal Bureau of Statistics
Syed Mahfooz Ali Shah	Director General	Agriculture Extension
William Vilbert	Statistical Officer	Agriculture Department

LOCAL TRAINING

Name of Course/Workshop	Date	Instructor	Participants
Agricultural Statistics Workshop	Jan. 31 - Mar.4, 1986	Jamil Rajut	17
Micro Computer Application User's Workshop	April 13 - 24, 1986	K. S. Oswalt	20
Management of Agri. Statistics	June 14-July 10, 1986	Charles Perry	17
Management of Agri. Statistics Systems	Jun. 14- Jul.10, 1986	Charles Perry Ron Fesco	20
SAS Training Course	Sept.17 - Oct.1, 1986	Naseer Quershi	17
Computer Application Managerial Seminars	Jan.12 - Jan.14, 1987	Ronald Sadler	18
Micro-Computer User's Workshop	Jan.18 - Jan.28, 1987	Ronald Sadler	20
SAS Basic For Personal Computers	Mar.18 - Apr. 8, 1987	Jim Stepanich	16
SAS Basic For Personal Computers	Apr. 2 - Apr.14, 1987	Jim Stepanich	21
Micro-Computer Workshop on Lotus 1-2-3	Aug.30 -Sept.10, 1987	Naseer Quershi	7
Basic Agricultural Statistics Course	Feb. 13- Mar.17, 1988	Jamil Rajput	17
PC Software Lotus 123	Feb.27 - Mar. 3, 1988	Waqar Gilani	30
Primary Data Collection Methods Workshop	Oct.30 - Nov.15, 1988	Paul Blackwood Terry Holland	21
Objective Yield Training	Sept. 16 - 18, 1989	Waqar Gilani	31
Automatic Data Processing Survey Methods Workshop	Sept. 25 - 16, 1989	Waqar Gilani	23
Micro-Computer Workshop on Lotus 1-2-3	Sept. 25 - 16, 1989	Waqar Gilani Suad Saeed	23
Primary Data Collection Methods Workshop	Mar.11 - Mar.29, 1990	Stephen Kellogg Gary Keough	20
Micro-Computer User's Workshop	Apr.21 - Apr.29, 1991	Waqar Gilani	16

FOREIGN TRAINING UNDER FSM

Last name	First name	Training field	Training location	Employees	Duration
Gilzai	Abdul Samad	Agricultural	USDA/OICD	Agricultural Department	1.50
Sheikh	Akhtar Ali	Agricultural	USDA/OICD	Agricultural Census Org.	1.50
Khokhar	Muhammad Ashraf	Agricultural	USDA/OICD	Agricultural Department	1.50
Hussain	Muzammil	Agricultural	USDA/OICD, W/DC	Federal Bureau of Statistics	1.50
Khan	Sharif Ahmed	Agricultural	USDA/OICD, W/DC	Federal Bureau of Statistics	1.50
Hayee	Abdul	Agricultural	KNASAS STU	Planning & Developmet Div.	2.00
Khan	Matiullah	Agricultural	USDA/OICD, W/DC	Agricultural Department	1.50
Thebo	Mohammad Amin	Agricultural	USDA/OICD, W/DC	Agricultural Department	1.50
Iqbal	Mohammad	Agricultural	ISPC/W.DC	Agriculture Data Collection	9.00
Rahman	Abdur	Agricultural	Study Tour	Federal Bureau of Statistics	0.75
Zia Uddin	Mohammad	Mathematics	US Bureau of Census	Federal Bureau of Statistics	9.00
Shafiq	Mohammad	Public Admin	USBLs, WASH. DC	Federal Bureau of Statistics	1.25
Younas	Mohammad	Labor	USBLs, WASH. DC	Federal Bureau of Statistics	1.50
Sulehria	Shahbaz Ali	Labor	US Bureau of Labor	Federal Bureau of Statistics	2.00
Azim	Abdul	Agricultural	OHIO STAT UNIV. COL	Federal Bureau of Statistics	9.00
Afzal	Mohammad	Agricultural Statistics	Int'l Stat Prgms Cntr	Federal Bureau of Statistics	4.00
Ramzan	Mohammad	Agricultural	Int'l Stat Prgms Cntr	Federal Bureau of Statistics	4.00
Butt	Shahid Iqbal	Agricultural	Int'l Stat Prgms Cntr	Federal Bureau of Statistics	4.00
Ahmed	Shaikh Aziz	Agricultural	Int'l Stat Prgms Cntr	Federal Bureau of Statistics	4.00
Ali	Syed M. Muzhar	Agricultural	OHIO STAT UNIV. COL	Federal Bureau of Statistics	9.00
Bhatti	Mohammad Sardar	Analys	ADL U of Connecticut	Federal Bureau of Statistics	2.75
Jalil	Abdul	Mirco Appl.	USDA/WASH. DC	Federal Bureau of Statistics	0.75
Gondal	Abdul Ghafoor	Micro-c Appl.	USDA/WASH. DC	Federal Bureau of Statistics	2.75
Cheema	Iftakhar Ahmed	Micro-c Appl.	USDA/OICD	Federal Bureau of Statistics	2.75
Awan	Mohammad Akram	Micro-c Appl.	USDA/OICD	Federal Bureau of Statistics	1.50
Ahmed	Haji Noor	Mngnt of Agri.	USDA/WASH. DC	Federal Bureau of Statistics	2.25
Kausar	Farzana	Data Base Design	US Bureau of Census	Federal Bureau of Statistics	2.50
Khan	Mujeen Ullah	Agriculture Statistics	US Bureau of Census	Federal Bureau of Statistics	4.00
Ishaq	Mohammad	Agriculture Statistics	US Bureau of Census	Federal Bureau of Statistics	4.00
Cheema	Arif Mahmood	Survey Method	US Bureau of Census	Federal Bureau of Statistics	9.00
Khan	Muhammad Hashim	Inform/System	US Bureau of Census	Federal Bureau of Statistics	6.00
Abbas	Qamar	Seasonal adj of Price	USBLs, WASH. DC	Federal Bureau of Statistics	2.00
Hussain	Javed	Computer Science	Carnegie Mellon Univ.Pitt	Federal Bureau of Statistics	4.00
Yasin	Malik Ghulam	Survey & Census	ISPC,US Bureau Census	Federal Bureau of Statistics	3.00
Naeem	Shahid	1929020	Study Tour	Federal Bureau of Statistics	1.75
Ahmed	Iqbal	1929020	Study Tour	Federal Bureau of Statistics	1.75
Sherazi	Mansoor Ahmed	1929020	Study Tour	Federal Bureau of Statistics	1.75

FOREIGN TRAINING UNDER ASSP

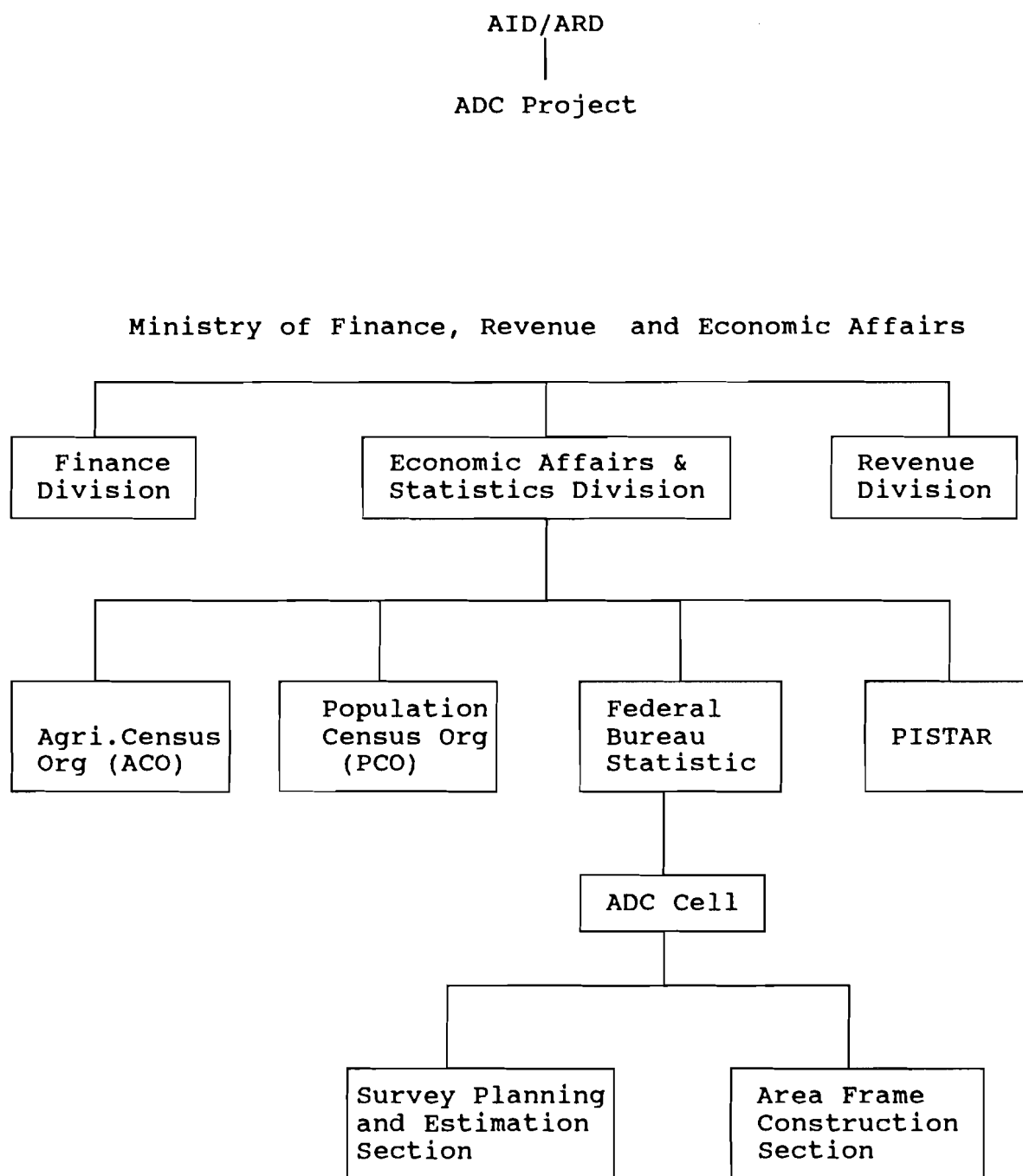
Last name	First name	Training field	Training location	Employees	Duration
Rashid	Amir Ahmad	Basic Agri. Survey	USDA/OICD, WASH/DC	Federal Bureau of Statistics	2.25
Baloch	Ghulam Murtaza	Basic Agri. Survey	USDA/OICD	Federal Bureau of Statistics	1.25
Maqbool	Muhammd Musharaf	Basic Agri. Survey	USDA/Office of Int'l Coop	Agricultre Department	1.25
Channa	Riaz Ahmad	Agriculture Statistics	USDA/Office of Int'l Coop	Agricultre Extension	1.25
Quershi	Mohammad Aslam	Design of Collection	US Bureau of Census	Agricultre Department	2.25
Younas	Muhammad	Agriculture Statistics	Univ. of Minnesota	Agri. Training Institute	1.00
Siddqui	Farukh Aleem	Computer Application	US Bureau of Census	Agri. Data Collection	9.50
Qadri	Abdul Rauf	Basic Agri. Survey	USDA/Office of Int'l Coop	Agricultre Department	1.25
Bajwa	Bashir Ahmed	Basic Agri. Survey	USDA/OICD	Federal Bureau of Statistics	1.25
Hussain	Khadim	Basic Agri. Survey	USDA/OICD	Federal Bureau of Statistics	2.00
Ghilzai	Abdul Samad	Basic Agri. Survey	USDA/OICD	Agricultre Department	1.25
Rafique	Muhammad	Basic Agri. Survey	USDA/OICD WASH/DC	University Of Peshawar	1.25
Younas	Muhammad	Agriculture Business	Univ. of Delaware	Food & Agri. Division	17.00

ADC PASA FUNDING

	----- USDA (PASA) -----					AID-Retained
	Salaries	TRV	Overhead	Mic	Total	
<u>FSM FUNDING</u> (June 15, 1985 - June 30, 1990)						
Original	161,929	79,380	164,025	727,800	1,133,134	0
Amndt # 1	251,778	79,760	183,227	373,235	888,000	1,024,999
Amndt # 2	390,436	72,250	254,986	310,000	1,027,672	0
Total (FSM)	804,143	231,390	602,238	1,411,035	3,048,806	1,024,999
<u>ASSP FUNDING</u> (July 1, 1990 - December 31, 1994)						
Original	165,169	46,030	86,589	29,325	327,113	191,900
Amndt # 1	221,135	42,380	98,600	10,375	372,490	192,660
Amndt # 2	494,915	17,513	170,182	371,947	1,054,557	1,147,454
Total (ASSP)	881,219	105,923	355,371	411,647	1,754,160	1,532,014
GRAND TOTAL (FSM+ASSP)	1,685,362	337,313	957,609	1,822,682	4,802,966	2,557,013
GRAND TOTAL (PASA+AID)						7,359,979

** It is only PASA operational cost. Overseas training and commodities costs are not inclusive, which were separately funded under ASSP.

ORGANIZATIONAL CHARTS



DEPARTMENT OF AGRICULTURE, PUNJAB

SECRETARY AGRICULTURE

